

Reconceptualising Processability Theory: Morphosyntactic Staging and Its Misalignment with Emergentist Acquisition Trajectories in L2 Arabic

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Abstract. Processability Theory (PT), as originally formulated by Pienemann (1998), has long served as a foundational scaffold for sequencing L2 instructional interventions and predicting developmental readiness. However, growing empirical evidence drawn from longitudinal learner corpora in typologically distant languages challenges its universal morphosyntactic staging hierarchy. This study employs a mixed-methods corpus-driven design, analysing 1,240 learner-produced written and oral texts from advanced L2 Arabic learners across three institutional contexts in Morocco, Germany, and South Korea. Applying computational morphological parsing alongside think-aloud protocol analysis, we demonstrate that emergentist acquisition trajectories systematically diverge from PT-predicted stage sequencing, particularly at the noun phrase and verb agreement levels. Our findings call for a substantive revision of PT's cross-linguistic applicability and propose a revised emergentist-compatible staging model grounded in usage-based construction grammar frameworks.

Keywords: Processability Theory, L2 Arabic acquisition, morphosyntactic staging, emergentist framework, usage-based construction grammar, learner corpus analysis, developmental sequences, cross-linguistic applicability, verb agreement morphology

Introduction

The relationship between cognitive processing constraints and second language (L2) developmental sequences has occupied a central position in applied linguistics theory for nearly three decades. Processability Theory (PT), initially systematised by Pienemann (1998) and subsequently elaborated in typological extensions by Håkansson, Pienemann, and Sayehli (2002), posits that L2 learners can only produce and acquire linguistic structures for which they possess the necessary processing procedures. This hierarchical

staging model has exerted considerable influence on syllabus design, proficiency assessment rubrics, and computer-assisted language learning architectures globally. Yet, as the discipline enters a period of heightened methodological reflexivity in the mid-2020s, several converging lines of empirical inquiry are placing unprecedented pressure on PT's claims to cross-linguistic universality. The urgency of this re-evaluation is not merely theoretical. Institutional language programmes serving millions of learners in multilingual societies — from the Arabic immersion tracks of European universities to heritage language curricula in East Asian tertiary contexts — are architecturally reliant on PT-derived staging sequences. If the developmental hierarchies underpinning these curricula misrepresent actual acquisition trajectories, the pedagogical consequences are far-reaching: instructional sequencing may inadvertently impede rather than scaffold learner progress, and diagnostic assessment tools calibrated to PT stages may systematically misclassify learner readiness. Emergentist accounts of language acquisition, drawing on connectionist modelling, frequency-driven entrenchment, and usage-based construction grammar (UBCG), offer a competing explanatory architecture. Rather than postulating a fixed procedural hierarchy, emergentist models foreground the probabilistic, input-sensitive nature of morphosyntactic development, predicting individual-level variability and context-dependent stage permutation that PT's deterministic staging cannot accommodate. Despite growing theoretical alignment between emergentism and corpus-based acquisition research, no study to date has conducted a systematic, cross-institutional empirical confrontation between PT-stage predictions and emergentist trajectory modelling in the domain of L2 Arabic — a language whose non-concatenative morphology and verb-initial canonical word order render it an especially critical test case. The present article addresses this lacuna through a mixed-methods corpus-driven investigation. Section 2 provides a critical review of PT's theoretical architecture and its prior extensions to Semitic languages. Section 3 delineates the methodological framework, including corpus composition, computational morphological parsing protocols, and think-aloud data collection procedures. Section 4 presents quantitative findings on morphosyntactic staging divergence, with particular attention to nominal agreement chains and subject-verb agreement morphology. Section 5 develops a revised emergentist-compatible staging model and discusses its implications for instructional sequencing and assessment design. Section 6 concludes with a reflection on the broader epistemic implications of the findings for universalist theories of L2 acquisition.

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